recd Feb. 28

Illustrated FOREST & OUTDOORS

FEBRUARY

1947

Montreal, Canada.

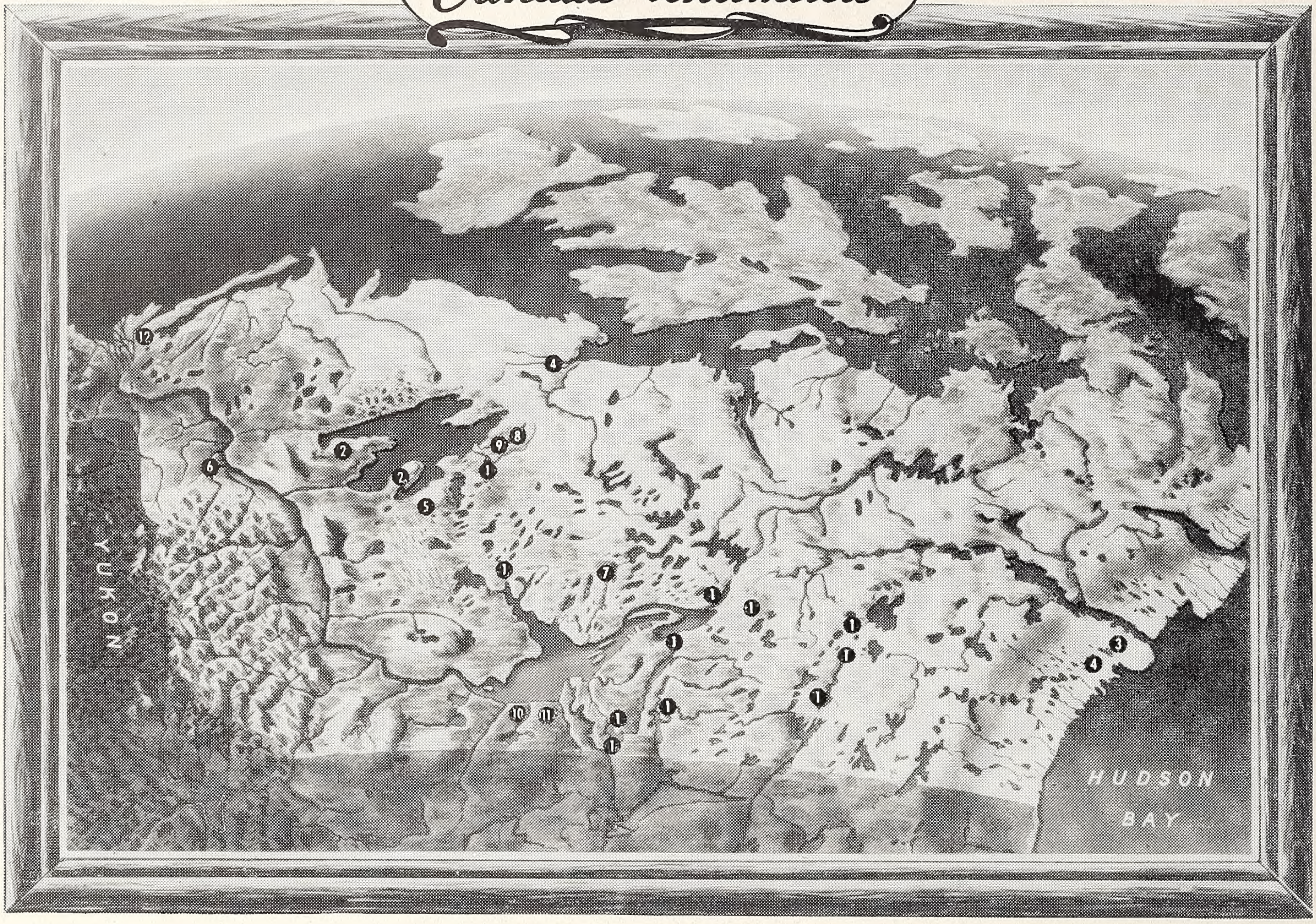
THE PEACE TOWER, OTTAWA.

Photo—Malak

Map Legend...

1. Water Power
2. Coal
3. Nickel
4. Copper
5. Furs
6. Petroleum
7. Gold
8. Pitchblende
9. Silver
10. Lead
11. Zinc
12. Reindeer

NEW HORIZONS IN *Canada Unlimited*



One of a series of maps "New Horizons" copyright by O'Keefe's

Northwest Territories ... LAND OF DISCOVERY

Except for the fur trade, the tremendous natural resources of the Northwest Territories were virtually unknown and unexploited until the 20th century. Then in startling succession the vast wealth was revealed . . . Gold and Silver, oilfields under the midnight sun, and Pitchblende, the source of power for a dawning atomic age.

Today the New Horizons of Canada Unlimited extend to the shores of the Arctic Ocean In common with the rest of Canada The Northwest Territories provide boundless opportunity for the fulfillment of the ambitions of youth. Canada is a land with a future.

THERE ARE NEW HORIZONS IN CANADA UNLIMITED
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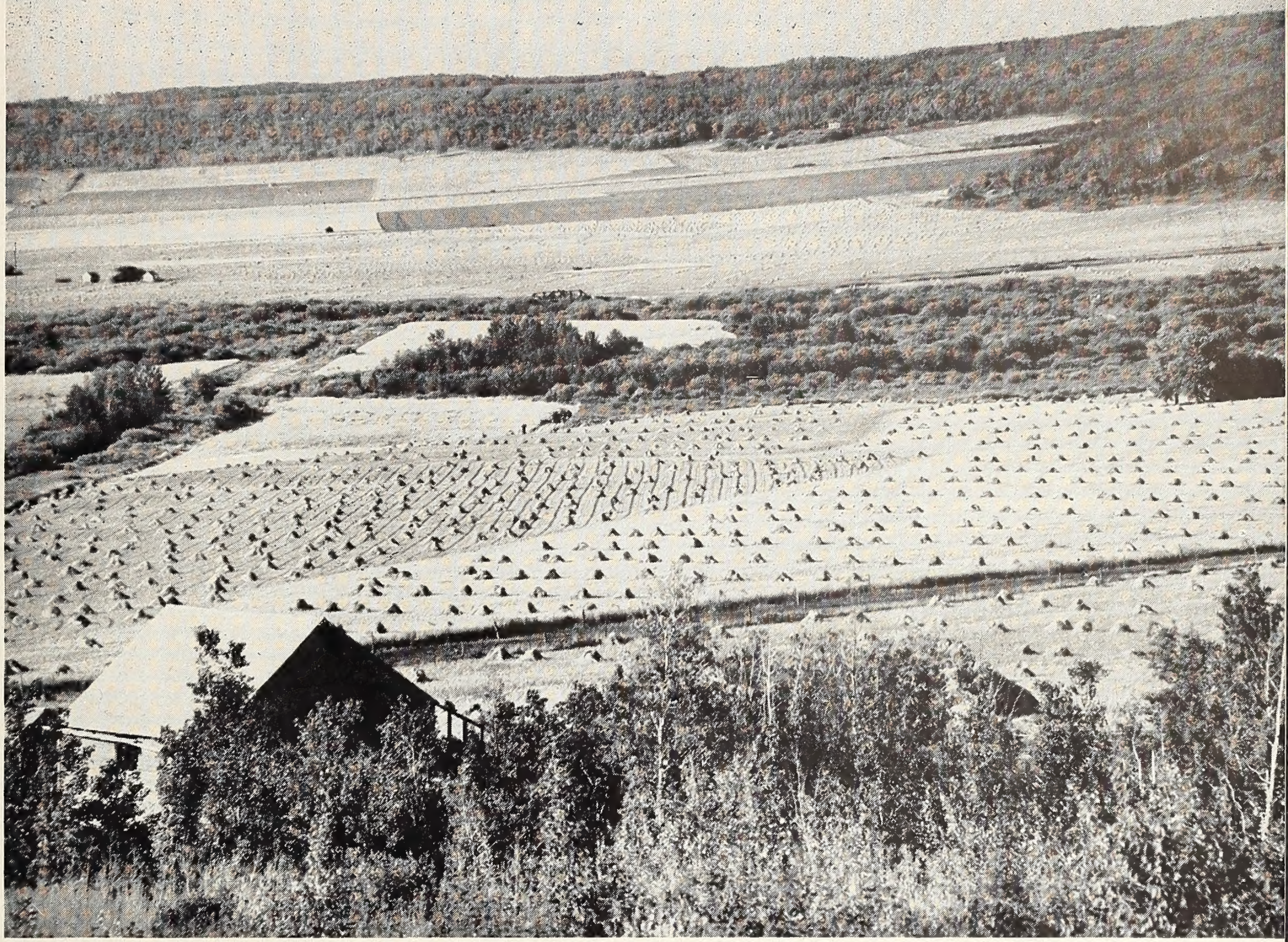


Manitoba's fruitful fields and forests.

Photo C.P.R.

Ramparts of Trees for Every Farm

OF THE.... PRAIRIE WEST

by ALAN BEAVEN

Manager, Western Division, Canadian Forestry Association

What does he do who plants a Tree ?
He plants in leaf, in sap, in wood,
In love of home and loyalty
And farcast thought of civic good
His blessing on the neighbourhood.

IN THE story of tree planting and its place in the life of the people of Alberta, Manitoba, and Saskatchewan, we must include the contribution of those trees planted by nature. Across the plains today are pockets of aspen and balsam poplar, which we in the West call "bluffs", and whose seed, scattered by winds and birds, has in the past few years made them an increasingly familiar sight on what was open prairie twenty five years ago. We cannot overlook the benefits to our agricultural life of that vast belt of trees lying just north of the open plain, and extending all across the west from Manitoba to the foothills in Alberta. This we call our parkland belt. All trees must be included to present a comprehensive picture of the part the natural and the planted tree have played. This is a story of trees, but more it is a story of people, a people who pioneered an agricultural treasure house.

Our story covers the period from the end of the first world war until the present day. These have been fruitful years in the accumulation of knowledge, in progress made. These are the years that the Canadian Forestry Association, with its tree planting car, has been working with the people of the West. That period covers many of

What a prairie garden can produce once shelter belts of trees are established.

Created from a desert prairie in 1931 by A. Larson, Radville, Sask.

FOREST RESOURCES

to Stagger the Imagination

"The figures of Canada's forest resources stagger the imagination. Only two other countries, Russia and Brazil, have greater forested areas. Canada's total is about 1¼ million square miles. The productive area, 770,000 square miles, is about equal to the combined areas of the British Isles, France, Spain, Portugal, the Netherlands, Denmark and Sweden."

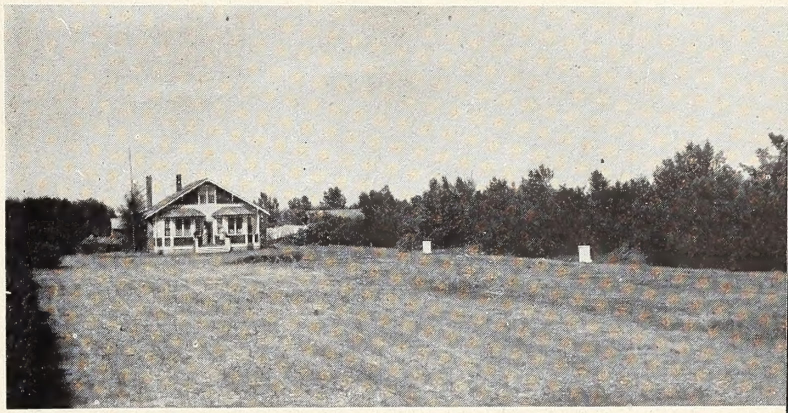
—Excerpt from a Monthly Letter of The Royal Bank of Canada

The Royal Bank assists in the financial operations necessary to convert Canada's vast forest resources into pulp and paper, lumber, and many other products for domestic use and for export.

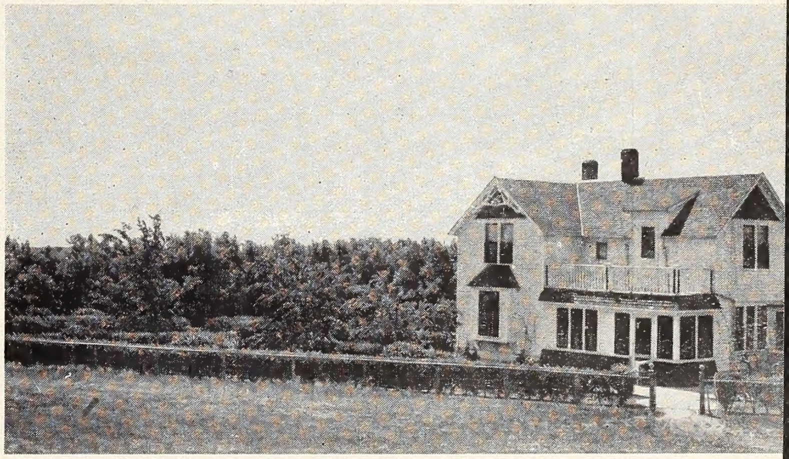
THE ROYAL BANK OF CANADA

ASSETS EXCEED $2,130,000,000

Angus cows in their winter shelter of tree groves at C.P.R. Display Farm, Coaldale, Alberta.



Comfort on the prairies — home of A. Coakwell at Elrose, Sask.



Once open prairie, now the attractive home of A. J. Thiessen, Langham, Sask.

our best and some of the worst years of big crops and complete failures. From them we unfold the story of trees, the part they have played, and with this background look with assurance to the years ahead, and the increasing contribution they will make.

Agricultural settlement had taken place long before the time we have outlined. Around 1880 people were moving westward, with the Canadian Pacific Railway stretching out its roadbed of steel to serve them. Many of these people built their homes on a sea of open plain. Some of them, remembering the companionship and restful shade of trees "back home", planted a few near the house, even in those early days. In other areas some native poplar grew and settlers left a few of them around their buildings, and so the friendship between the people and trees was formed and has remained. This early association between people and trees was an individual one, but as the great value of trees was recognized other agencies took an active part.

At the turn of the century the Dominion Government opened a forest nursery station at Indian Head, Saskatchewan. Here information was gathered on what varieties of trees to plant and how to plant them. In the nursery trees were grown and sent out free to farming people who wished to plant them. Under the help and guidance of trained men from this Station the use of trees became a part of Western development. The greatest obstacle to the spread of tree planting at first was the almost general belief that because much of the prairie had no tree growth, nature had made it that way, and trees were not intended, nor would they grow. To this must be added a lack of knowledge on western tree planting, with consequent failures in some early attempts at tree planting. Tree-conscious farmers conquered some of their early mistakes, and slowly learned what was needed for success. Sound information from the Forest Nursery Station spread, and this organization sent trained men out amongst the farming people, giving help, and these efforts eliminated many of the early hazards. Progress in successful tree planting was being made.

Individuals selling trees and later the commercial nurseries also played a part. In the early days men travelled across the plains selling trees to farming people. Some of these were only willow poles, which when driven in the ground would sprout, and in one year a tree, with a good sized trunk, was the result. But these early tree salesmen had no knowledge of western conditions, much of what they sold was not suitable, and little of it survived. Their contribution was mostly in keeping people in touch with trees, and the desire to have them. These men were followed by the establishment of the commercial nursery which has made, and continues to make, a great contribution to western tree planting. At Estevan, Saskatchewan, in the heart of the open prairie, Mr. T. A. Torgeson founded "Prairie Nurseries". A permanent Western Nursery, it must succeed or fail with the people of the West. It must sell stock that lives, and insure this by showing the people the best methods of tree planting. The tree salesman became a neighbour and a friend, whose business must grow with the success of tree planting in the West. Mr. Torgeson realized that his nursery must obtain all the knowledge possible on western tree planitng, and that his salesmen must be trained nurserymen, with knowledge of landscape gardening. He engaged outstanding horticulturists and landscape gardeners to instruct the members of his organization. Prairie Nurseries spent large sums of money on these training schools, and the lessons learned were passed on to the tree planters of the prairie. That Mr. Torgeson built wisely is evident in the steady growth of his organization. It has served the people of the West in good years and bad and is today the largest commercial nursery in Western Canada. Many other nurseries played a part. Mr. Skinner, owner of the Hardy Nurseries at Dropmore, Manitoba, is one of Canada's outstanding plant breeders, and has done a great deal in the introduction of suitable material for western planting.

To treeless Regina in those early years came George Watt, a Scottish trained horticulturist, whose sound

(*Continued on page 55*)

Song of the River — A study by Armstrong Roberts

Every Man His Own Tree Surgeon

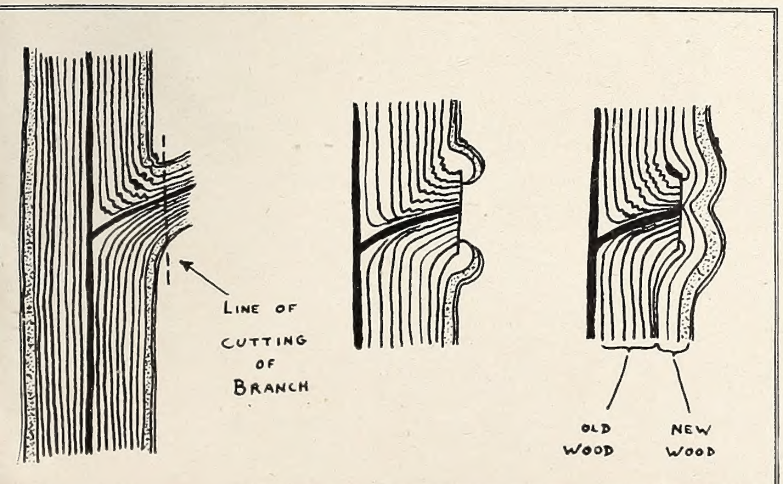
An informational nature department conducted by NORMAN G. ROGERS

ONE of the commonest sights to be seen on trees, especially those near a settled district, is the collection of wounds on the trunks. Where the trees are growing on some valuable private property, or where they are looked after by a progressive town administration, these wounds are filled in to prevent further decay and eventual death of the tree. Imagine a fair proportion of the people walking around with their cuts and injuries open and bleeding, inviting germs to enter and do more damage ! Unless a cut through the bark or outer protective skin of a tree is sealed, then all types of fungus and mould spores can find entrance to a particularly favourable site for germination and rapid growth. These plants will kill the tissues of the wood they come in contact with; the heart of the tree is thus rendered rotten and in a severe windstorm it may come crashing to the ground.

One of the best ways to seal up these cavities and make them infection proof is to fill them with cement. First of all, clean out from the cavity all dead and diseased wood, cutting right down to the good, living tissues, then coat the surface with a solution of copper sulphate or creosote. If the wound is very large, this treatment should be followed with a coating of hot tar to form a resilient cushion for the concrete to help prevent it from cracking. To fix cement into the hole so that it will not fall out, drive some nails all around the opening into the newly formed wood so that they will be imbedded in the cement. In large holes, bars may have to be put across the wound or wire mesh tacked into place to serve the same purpose as the laths in plaster walls. When the cavity is ready it should be filled with concrete made in the following suggested proportions of 1 bag of cement: 2 cubic feet clean sand: 3 cubic feet clean pebbles or graded crushed stone. The mixture should not be made too thin and should be well packed into the cavity to fill every crevice. If difficulty is found in keeping the concrete in place until it hardens, then suitable material may be wrapped around the trunk and tied in position. Sacking or canvas is suitable. When the patch is dry the surface should be painted with a mixture of pure cement and enough water to make a cream. This is to make the concrete waterproof which, in fact, is the reason behind the whole operation because it is in moist dead wood that the fungi thrive best. If the cavity has been properly prepared and the bark trimmed around the edges it is quite possible for the bark to grow right over the cement and completely enclose it. The life of the tree will therefore be extended for many years.

A somewhat similar method of growth occurs in the case of knots in wood which is illustrated in the drawing. If a branch is sawn or broken off as is indicated by the dotted line in the left-hand figure, then the wood at the end of the branch usually dies and the bark of the tree begins to grow over it. The trunk of the tree increases in diameter each year while the dead branch does not. Thus the end of it steadily gets left behind by the growing wood which eventually covers it. Since the branch-end is dead wood, it shrinks in size, and when the tree it is in is sawn into logs and then into planks, the piece of branch is smaller then the hole it is in and so falls out, leaving the familiar knot-hole. It is for this reason that when 'clear' lumber is desired, the trees are grown close together. The top branches and leaves shade the bottom ones which die and fall off when quite small. The knots left in the wood are therefore small and unimportant. If the trees are not close enough together then the branches should be removed artificially and the cut end painted to prevent rot.

Care is needed in removing old branches



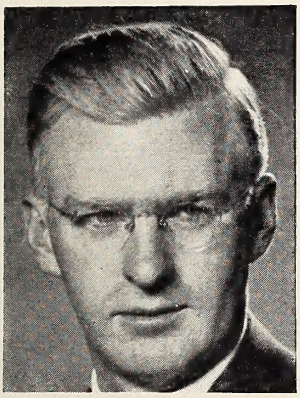
Heart trouble in trees calls for surgical repair.

It is interesting at this point to take note of the movement of fluids within a tree. Technically speaking, the conducting cells of a tree stem are called the xylem and the phloem. The xylem cells are larger and thinner-walled in the spring, and smaller and thicker-walled in the autumn, consequently the growth of wood which represents one year can be easily recognized in most trees, the lighter part of the annual ring being the spring wood and the darker part the summer and fall wood. It is now generally felt that the main movement of sap up the trunk takes place through the xylem cells, while movement of sap to nourish the tree itself takes place upwards, downwards and sideways through the phloem. (The phloem cells are always on the outside of the xylem, that is, towards the bark, and are separated from the xylem by a cambium or cork layer.

The Spring Break-Up.

A Camera Study by Norman Rogers.

WILDLIFE ALLIES *help to hold our* WORLD IN BALANCE



by

JAS. L.
BAILLIE Jr.

THE FACT that many forms of wildlife are dependent upon other animals for their very existence is well-known to naturalists. Certain hawks subsist on mice, snakes relish frogs, shrews live on insects, lake trout thrive on the young of other fishes, and certain salamanders eat smaller aquatic animals — to use a single example from each of the major classes of vertebrates.

Such animals we call predators. How a predator can be important enough to affect the whole economy of a vast area of northern Canada is shown by the Snowy Owl, which feeds in summer to a large extent on Lemmings — small rodents inhabiting the Arctic barrens.

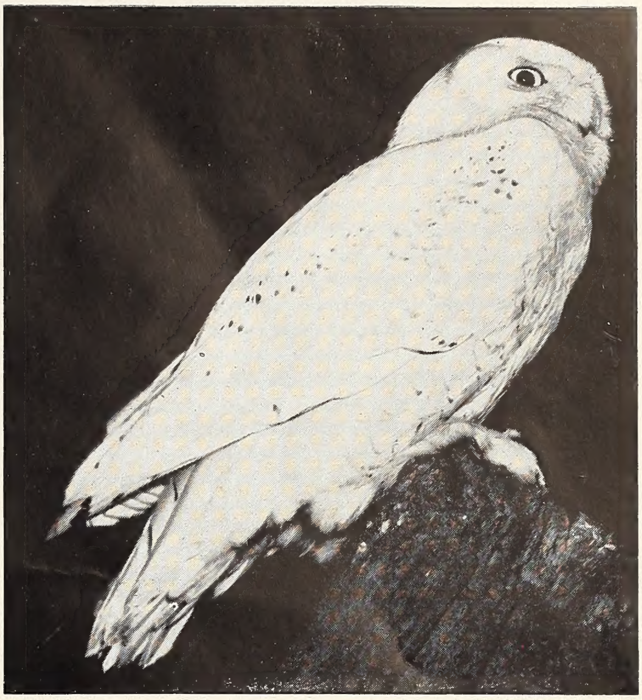
About every four years, the great owls desert their breeding grounds and pour down into agricultural Canada and the northern United States — due to a failure in the Lemming supply. At such times, it is necessary for the Hudson's Bay Company to extend credit to the Eskimo, who derives much of his livelihood from trapping Arctic Foxes, which also subsist on Lemmings. When the Lemmings crash, their predators necessarily either starve, turn to other prey, or move out of the Arctic in order to obtain the food necessary for their existence.

In the winter, during such southward flights, the big Arctic Owls perform a useful service to mankind in farming areas by keeping down the numbers of rats and mice, among the worst enemies with which the agriculturist has to contend.

A very heavy southward flight of Snowy Owls occurred last winter, and a smaller "echo flight" is visiting us this winter. They richly deserve our protection.

* * *

The fate of the great Ivory-billed Woodpecker, which is fast approaching extinction, has been occupying the attention of conservationists and ornithologists. With a total length of 20 inches, the Ivory-bill is the largest woodpecker in the world excepting the Imperial Woodpecker of Mexico (22″).



Male Snowy Owl. Photo: Don Willcox.

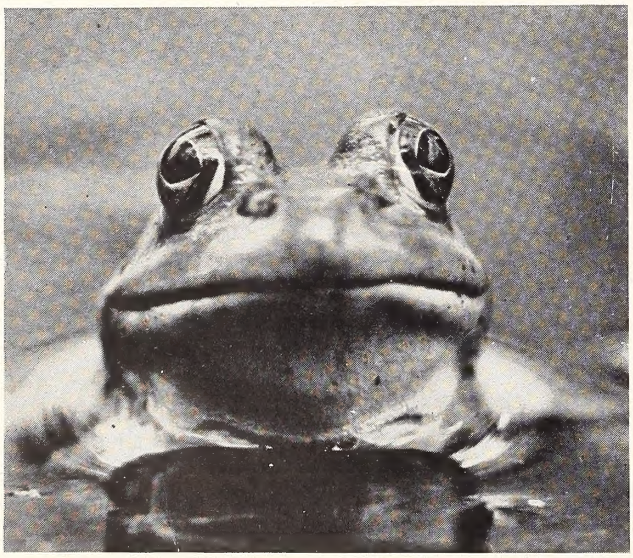
Ivory-billed woodpecker. From a painting by T. M. Shortt in the Royal Ontario Museum of Zoology.

Once widespread through the bottomlands and swampy deciduous forests of 14 south-eastern United States, (north to southern Illinois and Indiana), the great Ivory-bill is now reduced to a pitifully small remnant in Louisiana, Florida and South Carolina.

Aware of the precarious situation, the National Audubon Society commissioned Dr. James T. Tanner to make a three-year survey of the few remaining Ivory-bill habitats, and as a result, he was able to report only 22 birds living in the Big Cypress region of northern Florida and in the Singer tract of northern Louisiana (1939). An additional remnant — population undetermined — was reported along the Santee River in South Carolina.

Protection of the few remaining Ivory-billed Woodpeckers is rendered difficult because of timber cutting

Female Snowy Owl. Photo: Don Willcox.



Bullfrog. Photo: Carol Proctor.

in the Singer area of Louisiana, speeded up of recent years due to the denamds of the late war, and the Committee on Bird Protection of the American Ornithologists' Union reports that "the extinction of this species within a comparatively short time seems inevitable".

* * *

Man's estimate of the value of animals and just how they fit into his economy is sometimes unfair to the species of wildlife concerned.

Robins, for instance, are carefully protected throughout most of North America, yet their well-known propensity for earthworms causes one to wonder whether such protective measures might not be more effective, were they extended to hawks and owls, which prey largely on the farmers' worst enemies, rats and mice.

The question of the earthworm having uses other than as fish-bait was raised at a recent convention of the American Association for the Advancement of Science, in Boston. Henry Hopp and Homer Hopkins, of the United States Soil Conservation Service, on that occasion expressed the belief that these wriggly invertebrates benefit man considerably by making his soil more fertile and thus creating bigger and better farms crops.

These scientists, experimentally, found that before dying, the individual earthworm deposited eggs in the soil which, in time, produced young worms. The decaying remains of the adults. provided useful fertilizer and a consequent increase in plant production by causing the release of nitrate and ammonia from the soil.

Robins undoubtedly deserve our protection for aesthetic and economic reasons, but their usefulness as destroyers of earthworms may merit further investigation.

* * *

Even our most common animals provide plenty of scope for further study. For one thing, the idea that any given species is found generally throughout Canada is not in accord with the facts as assembled by naturalists.

A good example of this is to be found in the big Bullfrog, one of our best known amphibians. Named *Rana catesbiana* in honour of one of North America's first naturalists, Mark Catesby, the big Bullfrog has a wide range through south-eastern North America. In Canada, however, its distribution does not seem to cover more than extreme southern Ontario.

Concerning its life-history, although the major facts are to be found in the published literature dealing with herpetology, one might search in vain for many details concerning its breeding, hibernation, food habits, longevity, voice, and its relation to other animals.

It is the largest and most aquatic of all our frogs and is famous because of its voice, appetite and value as food. Its body length has reached 8 inches, its zooming is a hoarse, deep-toned, oft-repeated "jug-o'-rum", and its annual value as chief supplier of frogs' legs has reached $300,000.00 in Louisiana alone. They can be caught by day on hook and line baited with red flannel, and by night by the use of jack-lights.

Bullfrogs hibernate in the soft mud at the bottom of the ponds in October, and are the latest of all our frogs to emerge (in May). The big males soon give vent to their sonorous vocal efforts, when the air and water temperatures reach about 70 degrees and 60 degrees, respectively.

Their food consists of insects, fishes, small turtles, crayfishes, other frogs, and birds.

We may say that, although a great deal of data has accumulated on Bullfrogs' habits and distribution, much new information awaits the discerning eye of the investigator before its complete story can be told.

And that can be said truthfully for almost all forms of Canadian wildlife.

The work of mercy never ends-Give

The Inside Passage, near Prince Rupert, B.C.

Topsy-Turvy Forest Taxation

by JOHN D. GILMOUR, B. Sc. A; B. Sc. F.

ONE-THIRD of the area of Canada's nine Provinces is estimated to be productive forest land. This area is estimated at some 760,000 square miles. It can only be estimated, because no land-classification to decide which is forest land, or range-land, or agricultural land, has ever been made. Such a classification respecting the best use of land is most essential in the long-term planning of all Canada's economy; it may be that ultimately the true forest area will be discovered to be greater. There is constant abandonment of farmlands in all the older parts of Canada. Such abandonment over the last 25 years appears to have been more rapid than has been the successful development of new farming areas.

The ownership of this 760,000 square miles is as follows:

Farm wood-lots	6%
Corporation and other private forests	7%
Crown land under leases or licenses	23%
Crown land completely unused	64%

The great forest industry of Canada supports itself on 30% of the forested area, and of this it owns only one-quarter.

Canadians have been taught that the public ownership of most of our forests is one great advantage we possess as a people. Foresters in the main have subscribed hitherto to the idea.

What is the record of the public ownership of most of Canada's forests? If it has been good, by the present day there should be clear indications of it.

All the reports, of Royal Commissions, of Governments, and others, for over 50 years to the end of 1946, tell an entirely different story. The reports are unanimous in finding inadequate fire-protection, over-cutting in some places, hoarding of mature or even decadent timber in others, in fact, rapid and general deterioration. The forests have been regarded as a prime source of Government revenue, of which far too little has been put back into the property. The forest industries are going further afield for raw materials, after their best and most accessible areas have become unproductive. The costs of forest products therefore are rising faster than is warranted by rising costs of wages and commodities, notwithstanding the fact that our markets are mainly export markets, and selling prices beyond our control.

Foresters are in Government employ for the most part. Their time is occupied chiefly in administration, in fire-protection, in policing, in the collection of revenue, few of which jobs require technical foresters. Too little time is spent by foresters in logging so as to produce by natural means a new crop, or in silvicultural and other research, which should be their chief functions.

It is undoubtedly true that the forests of Canada are potentially capable of maintaining a healthy forest industry far in excess of anything which has yet been seen in this country.

Forestry is one form of land use, and demands no land which is more useful for any other purpose. A survey of the history of land for other uses should be enlightening in diagnosing the forest troubles which beset us.

The first use of land in Canada was for farms, the basis being the one-family farm. This has proven in the long run to be successful in the use of land. During the war the farms of Canada produced more food than ever before, in spite of less labor and lack of machinery replacements.

Farms are assessed roughly on the basis of their productivity, and pay taxes accordingly. No farm crop is taxed although profit from the sale of farm crops is taxable under income tax laws.

There are no State farms in Canada, except those required for research and demonstration in agriculture. Federal and Provincial Governments spend large sums in assisting farmers. There are no "collective" farms in Canada.

In Western Canada it was soon found that there were large areas of more or less non-forest country which did not lend itself to the one-family farm of moderate size. This was range-land, of which each acre by itself had small productivity. Handled in large areas such land has high value for forage. Most of this is leased at a low annual rate, and the bulk of the revenue returned to the range, for extermination of predatory animals, and other purposes.

Profits from the production of beef or other stock are taxable, under income tax laws. The number of livestock kept on the range usually is subject to Government control so as to preserve its permanent usefulness.

No part of the annual production of animals is ever claimed by the Government in the form of a royalty or other sort of tax on the crop.

Applying these fundamental and successful ideas to forest land taxation, certain differences become apparent.

Forest Land which is attractive to an operator already bears a crop, the result of many years' growth. This crop has a value, which was not produced by human effort.

The existence of this crop, and its origin through Nature's unaided efforts, led to the reservation of a royalty on it, an amount due to the Government when the timber is cut. This royalty was taken into account by the purchaser when he bought the timber, or leased the land.

Forests require protection against fire through a part of every year, and are subject to other losses through insects, disease and storms. If a farm crop is lost, it represents only the loss of one year's crop, whereas if a forest crop is destroyed all the growth on the land, perhaps over many years, has been lost.

The time has come when it is possible to forecast quite closely when the last stand of virgin timber will be logged. This will vary in different regions, but is sure in all commercial forest areas.

Second-growth timber is now being logged, and much more of it is growing up. Already trees are being farmed, and eventually all the timber we log will have been grown by men's efforts.

A scientific system of taxation has not yet been set up for the forest crop which will succeed the original crop. Failure to provide such a system will reduce or may even prevent entirely these subsequent crops.

It is required first that the owner shall have some kind of tenure by which he knows that he or his heirs will own the second and later crops; also that he shall be taxed on a basis which he can afford to pay.

This taxation system could be on the basis of land ownership, (as in farms) or leasing (as in rangeland). Because of the long-term features inherent in forestry it is believed that land ownership should be the general rule. There is too short a term, and too much insecurity, under leasehold, for the practise of forestry.

On account of the nature of forests the owner should know his responsibilities and his ownership before he harvests the first crop. The reason for this is that if he intends to practise long-term forestry he can do a great deal to improve the crop by the manner in which he logs the previous one.

He can increase and improve subsequent crops by management as intensive as economic conditions allow. It is most important that the best forest land be kept at a high state of productivity. In this way the maximum employment and wages, and therefore the broadest base for Government revenues will be provided by the forest industries, their owners and their workmen.

Taxes are now imposed, and more are suggested, which ensure only a continuation of forest destruction. Under management for continuous yield the forest can pay less taxes than do farmlands, acre for acre. In the first place, they occupy poorer and more remote areas. In addition, there is a long wait for the product of any acre, and fire-protection costs, plus risks, which farms do not bear.

Already, we find anomalies in the taxation of farm wood-lots. There are cases where in the same Township a farm wood-lot under good management is assessed at $50 per acre, and one which has been ruined by grazing, over-cutting, or both, is assessed at $3 per acre. In other cases, a royalty is charged on Christmas trees grown on a farm. This is bad taxation, and is introducing for the first time in the case of farms the erroneous principle of taxing the crop. This principle has never been applied hither to either to farms or ranches, and should not be applied now to new forests which are grown as a crop.

In British Columbia there is a classification for taxation purposes known as "Wild Land". This is land which is starting to grow a forest crop. It is assessed and taxed at a rate of 3%, whereas the basic rate on farms is ½ of 1%. In 1946 there was added the Fire Protection Tax in the case of "Wild Lands", which tax is currently 6c per acre. The amount of 6c, on forest land which as bare land may be worth $2.00 per acre or less, is another 3% on the value. It applies to all the land within the "Wild Land" boundary, which means considerable rocky land, swamp or water.

Farm land therefore may pay a basic rate of ½ of 1%, and poorer land, with forest seedlings only starting to grow, as much as 6%. There is no assurance at what age "Wild Land" would be changed in classification to Timberland, and thereafter pay on the assessed value of the land and the timber.

It may be said that the Forest Protection Tax is not a tax, but that it is a service charge. Under whatever name, it still is a fixed annual burden on the land.

At any rate, farms bear no similar charge.

The poorest land is therefore paying at a rate 12 times as high as that levied on farm land. It is producing as yet no commercially valuable crop, it runs a constant danger of loss and when it begins to show a prospective value, long before it becomes merchantable, a new assessment will be made which will include the value of the land and the crop.

In the case of special timber licenses, a form of tenure which was created in 1905 and in effect until 1907, on the Coast the annual charges have been $140 per square mile, in the Interior $115, plus the Fire-protection Tax. Every timber license still in good standing has paid these costs for 40 years.

This form of tenure is subject to the current rate of royalty at the time the timber is cut.

This tenure allowed of the imposition of any forestry regulations decided on by the Government at any time. None have ever been imposed. They could have been, and equitably, if the royalty had been reduced to compensate for the extra costs thus incurred.

In the case of licensed Crown Lands, these generally are on an annual basis, Leases are for a longer term, but still for a number of years far short of one rotation. Only in the case of pulp and paper Companies, and then only within recent years, have Governments seen that such permanent industries required a very long term of tenure.

All the timber in Canada cannot be used for pulp and paper. There is a large sawmill industry, whose products also are essential in our permanent economy. No provision has ever been made for the permanence of this form of timber use.

In general, whenever a timber license is logged it reverts to the Crown. In British Columbia licenses are usually one square mile only. In Eastern Canada they are usually very much larger, many operated by pulp and paper Companies, who retain them for second crops. In this way they plan on always having second-growth areas, plus merchantable areas. Rotations for pulpwood are shorter than for saw-logs. It is my understanding however that the second crop will still be subject to royalties, and that no reduction in annual rentals is made for the second crop. In British Columbia it is understood that whenever a timber license is logged it must revert to the Crown.

Forestry practise would be enormously improved if legislation made it possible to hold the land for a second crop. This means a form of taxation based on land value for timber production. The second crop should belong to the owner who produces it and pays the taxes, or the rentals, in the same way as if it were farm-land, or a leased area of range-land. An owner will do a better job of logging if he knows that he will have an interest in the next crop. No set of Government regulations covering the logging of the first crop will ever do so well as the owner's own self-interest would induce him to do. Blanket regulations cannot be drawn up to suit all conditions even on a small area. It would require an army of Government foresters to draw up detailed regulations for each small section, then to police and inspect their execution.

In the case of large licenses held for pulpwood production, especially in Eastern Canada, it is time to consider

Elk Falls Park, Vancouver Island

the same subject. Once the original stand is logged, that logged portion should revert to a "Tree-farm" status, and royalty should not be imposed on subsequent crops.

For many years Quebec has been withdrawing arbitrarily from timber licenses lands for colonization. No compensation has been paid the licensee, although he had paid license fees and fire-protection costs for many years. After all this new "colonization", the area of cultivated land in Quebec has declined over many years. There has been, in other words, net abandonment of farms, because the land, never properly classified, is not suitable for farms. The result is destroyed forest, and fires which spread far beyond the colonization areas.

After many years of such legislation, and such administration, the people of Canada are prone to blame the forest industry for the condition of the forests.

Instances of the same sort can be found throughout all Canada. The people, who owned the land, have never thought about providing for another crop. The operators on the land were never given any opportunity to grow another crop. *(To be concluded in March issue)*

Annual Conference Reviews a Twelvemonth's Labours

THE annual meeting of the Canadian Forestry Association was held at Montreal, February 10th. with the following Directors and Officers present: Messrs Johnson, Bates, Black, Smart, Sweezey, Bigelow, Joly de Lotbinière, Cameron, Ommanney, Pepler, Cosens, Mason, Ker, Gobeil, Vance, Graham, Purdy, Koroleff, Keith, and, as guests of the Board: Messrs McCormack, Larose, Pelton, Shaw, and Thomson.

Careful review was made of the association's activities as contained in detailed reports covering 1946, and published under separate headings in this issue, as are the address of the Chairman-of-the-Board, Mr Vernon E. Johnson, and the results of the elections of Directors and Officers.

Discussion was animated and well-pointed on a wide range of subjects having to do with the betterment of Canada's position in resource management. A committee was authorized for the study and promotion of the proposed Dominion Forestry Congress which, for several years, has been advocated as a rallying point of national opinion on a more determined approach to forest management. To devise ways and means whereby the Canadian Forestry Association may obtain a suitable building as national headquarters by the date of its fiftieth anniversary, 1950, a special committee will be placed in charge. On the subject of woodlots, the meeting undertook to intensify the association's efforts to improve the management of farm woodlots.

Reviewing the association's financial experience of 1946, it was pointed out that of the total sum received, $93,301, and amount of $68,000, or 73 percent was spent directly upon educational enterprises, such as 'Forest and Outdoors' magazine, motion pictures, lecture tours, Junior Forest Wardens, field travel, and varied lines of publicity. Readers of this issue are invited to examine the fuller accounts of the association's 1946 programme as given in neighboring pages.

Officers and Directors—Canadian Forestry Association

(Elected at annual meeting, Montreal, February 10th 1947)

Chairman of the Board: Vernon E. Johnson
President and General-Manager: Robson Black
Vice-President and Chairman of Executive Committee: Dr. John S. Bates
Chairman for the Prairie Provinces: W. A. Mather
Second Vice-President: Fraser S. Keith.

Members of the Executive Committee:

Robson Black, Hon. G. P. Burchill, D. Roy Cameron, Arthur H. Campbell, B. L. Cassidy, J. B. Challies, Prof. G. G. Cosens, Dr. J. Miles Gibson, Geo. E. Graham, C. E. Hayles, Vernon E. Johnson, Henri Kieffer, J. D. Brulé, W. A. Mather, F. K. Morrow, R. D. Purdy, J. S. Woodward, Ellwood Wilson, Ralph S. Plant.

The following Directors were nominated by the eight provincial Boards, in agreement with the new plan adopted by the 1946 annual meeting, by which the National Board comprises five delegates from each provincial branch and additional directors-at-large selected at the Association's annual session :

British Columbia: Ralph S. Plant, Chairman.
R. S. Laird,
W. H. McLallen,
John D. Gilmour,
John L. Noble.

Alberta : R. D. Purdy, Chairman.
Hon. N. E. Tanner,
A. G. Baalim,
R. J. Dinning,
W. J. Dick.

Saskatchewan : J. S. Woodward, Chairman.
Hon. Mr. Justice W. G. Ross,
E. J. Marshall,
M. D. Thompson,
Hon. J. L. Phelps.

Manitoba : C. E. Hayles, Chairman.
John B. Richardson,
Gordon E. Konantz,
E. Weber,
Hon. J. S. McDiarmid.

Ontario : F. K. Morrow, Chairman.
D. A. Gillies,
J. F. Sharpe,
Prof. G. G. Cosens,
W. A. Delahey.

Quebec : J. D. Brulé, Chairman.
Avila Bédard,
W. A. E. Pepler,
Edgar Porter,
B. L. Cassidy.

New Brunswick : Dr. J. Miles Gibson, Chairman.
Hon. R. J. Gill,
Dr. G. H. Prince,
R. G. MacFarlane,
W. R. Church.

Nova Scotia : Geo. E. Graham, Chairman.
Bert Hayes,
Chas. G. Hawkins,
R. L. Seaborne,
John Bigelow.

(continued on page 62)

A lordly elk, one of the most beautiful members of the deer family. It may be up to nine feet in length, with an antler span of five feet. The large white disk surrounding the tail is characteristic, and sometimes called "white pants". Photos by R. W. Harrington.

Where the Elk and the Buffalo Play

by LYN HARRINGTON
Photography by RICHARD HARRINGTON

GONE are the thundering herds of bison that once thronged the western plains. Of those millions that once ranged the prairies in an undulating sea of brown, only a few thousand remain.

The story of saving the buffalo from extermination by ruthless hunters is closely bound up with the development of national parks, both in the United States and in Canada. Wild buffalo or bison exist as wild animals only in northern Canada, where about 12,000 inhabit the Wood Buffalo Park.

The buffalo herd is one of the feature attractions of Riding Mountain National Park. About 50 miles north of Brandon, Manitoba, this extensive park is one of the largest of Canada's national playgrounds. Its irregular revolver-shape contains over eleven thousand square miles of forest, plain and lake. The enclosure for wild animals at Audy Lake covers miles of territory, affording the animals the illusion of freedom.

Audy Lake lies some 25 miles from the headquarters of the park at Wasagaming, so that many visitors fail to get a glimpse of these monarchs of the plains. But it is worthwhile rising before the sun, making the trip to the enclosure while the dew is still wet on the grass in order to see the animals.

During the heat of the day, the animals seek out the cool shadows under the trees, back from the road. The late-rising visitor who comes hopefully later in the day, must wait until evening, or go away disappointed.

Even before you reach the buffalo enclosure, you may catch a glimpse of the shy elk. Riding Mountain National Park has the largest herd of elk in Canada. But they are extremely wary. We saw a couple slowly crossing the road some distance ahead of us, but it is hard to get close to them. As the sun gains in strength, these beautiful tall creatures fade back into the shade of the forest.

The sun was just rising over the tops of the trees, casting long shadows on the damp fields, when we reached the animal enclosure. There were literally hundreds of elk there in the open fields close to the edge of the forest. Yet not one could we discern until our guide pointed them out to us. Then we could easily spot them, one after an-

Part of the exhibition buffalo herd in Riding Mountain National Park. They are grazing on "prairie wool", while the purple sage blooms all around them.

other, in groups and in couples and solitary.

But at the sound of the car, the elk threw back their heads in that lordly gesture, then wheeled and began making off amongst the trees. It was disappointing to see them for such a short time. With bobbing movements of their white flanks, they were gone.

"You can't get close to them in a car," said our guide, "and a man on foot hasn't a chance to get near them. They run like wildfire. Sometimes a man on horseback can go amongst them, but they take alarm very readily."

Only a fraction of the herd is within the enclosure. Most of the elk are free to wander throughout the park and outside of it — the latter at their own peril. For the park, like all our other national parks is a game sanctuary, but its protection stops at the park boundaries.

As we turned away regretfully from the empty meadow, our guide pointed out a group of five mule deer, standing quietly on a nearby slope. They took alarm at the movement of the elk, however, and vanished up the slope with their spectacular leaps which have earned them the name "jumping-deer".

Deer and moose range the parklands as well, but the latter are seen only rarely. Small animals abound, such as squirrels, martens and a few beaver. But all these animals must be protected from hunters and trappers, for the park is a reservoir of wild life.

The buffalo were less timid. As we drove down the narrow road leading past their enclosure, some of the herd was on one side of the fence, some on the outside, strung across the road. We approached very slowly — still in the car, since visitors are instructed not to leave the safety of their cars — and came to a halt without alarming the herd.

It was interesting to see these great beasts up so close. These were not the bored, unhappy creatures of the zoos. Instead of the lack-lustre eyes of the zoo specimen, these had small bright eyes that kept a close watch upon visitors. Small in proportion to the size of the animals, their horns were black and curved, with very sharp points.

They made a curious snuffling sound as they grazed upon the "prairie wool", knee-deep in purple-flowered sage. The young bulls would occasionally push and bunt each other, but without serious intent.

When white men first gazed upon the buffalo, they thought it was a species of mis-shapen cow. And indeed the buffalo calves can scarcely be distinguished from calves of the barnyard, except for their brilliant tawny colouring.

But soon they develop their specific characteristics, the heavy humped shoulders, with powerful thick neck. The heavy growth of shaggy fur on the head, shoulders and front legs seem in strange contrast to the narrow hips and incredibly nimble feet. It is not hard to believe that the calves can run almost as soon as they are born.

As the animals multiply each year, it is necessary to cull the herd in order to keep it within the bounds of available food. The best animals are left of course. Buffalo steaks are often sold in the meat markets of our larger cities, meat that comes direct from the national parks. The immense hides are tanned, and some are made up into warm winter coats, such as those worn by the traffic policeman of Winnipeg.

The buffalo herd in Riding Mountain National Park is by no means the largest in Canada. Another exhibition herd may be seen in Prince Albert National Park in Saskatchewan. Elk Island National Park has been called "the new home of the buffalo", since the herd there numbers over 1,200 head.

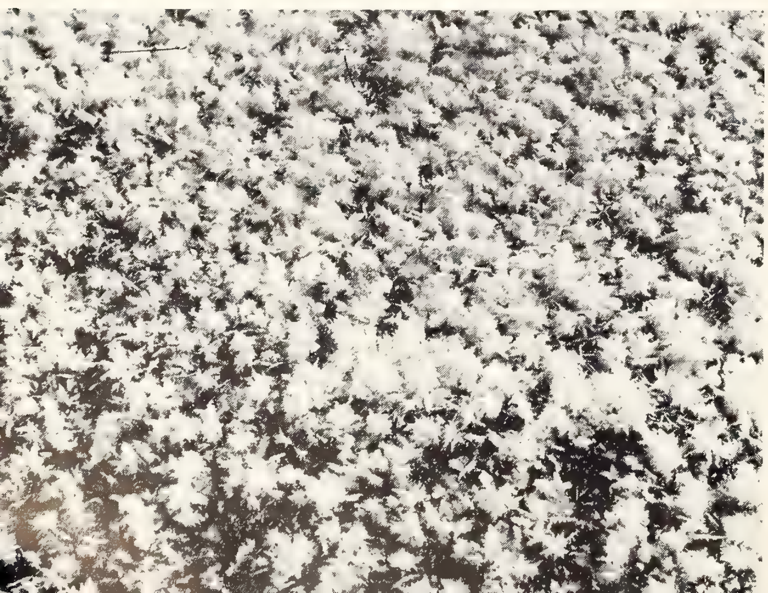
The buffalo form a major tourist attraction in our national parks, perhaps a sad state for the former monarch of the plains. In these great beasts, the tourist may read a warning against ruthless destruction, a very pointed lesson in conservation.

JACK FROST'S FLOWER GARDEN

by LYN HARRINGTON

THE magical designs that are created by frost are familiar to all of us who have ever seen a snowflake, who have gazed with wonder and delight upon the frost scenes patterned on our windows. If the window-pane is dry and cold, the scenes may be of a delicate tracery of woods and castles, bowers and bridges. If the glass is moist or damp, the frost will be thicker, encrusting the pane with designs of ferns, trees, corals and stars.

Feathers of frost on ice. Photo: R.W.Harrington.



A study of ice formation yields many fascinating aspects of the creative genius of Jack Frost. One that may be seen quite frequently in Canada is the field of ice-flowers which suddenly blooms on the ice near the open water of a stream or pond.

It is hoar-frost, built up into beautiful forms in the zero weather. Its forms assume needle-like or fern-like shapes of considerable size and great beauty. These may occasionally be shaped by the force of the wind into building up on one side or the other.

Those built up on still windless nights are the condensation of the moisture in the air, built onto the granular or crystalline structure of the frost particles. Beautiful clusters or rosettes of jewel-like frost collect upon the surface of the ice. In spring, or during a thaw when the air is filled with moisture is the time to see these frost formations.

The feathers of frost do not last long. They may vanish with the rising of the sun, or beneath a drift of snow. But while they last they are a thing of beauty, and worth watching for.

Watchmen of the Woodlands

by ALBERT POTVIN

IF YOU have at any time motored through the National Parks or other forested areas of Canada the gleam of a white tower on the crest of some hill has no doubt caught your eye. You must have wondered then about the men in charge of these posts, about the lonely life they lead and what duties and distractions fill their day. You may have asked yourself how they keep in touch with the settlements and what they are expected to do in case of a forest fire.

Though this work does commit a person to isolation during the fire danger season, it is not as lonely a life as one might think. A lookout operator can usually busy himself with one of a dozen chores when his time is not taken up by observations and reports. The long evenings might well bear heavily on a restless person but most operators spend these hours wisely in reading or listening to their favorite radio programs. Those who have a natural fondness for the woods and wild life may want nothing better than just hiking about the hill after their work day, making friends with rabbits and squirrels or listening to the evening bird calls.

There are over one thousand lookouts dispersed over the breadth of our Canadian forests. Only a small number of these can be seen from the roadways; most of them have been erected in the backwoods on some high point where they command a wide view of timberland. These posts are usually reached over wagon roads opened through the woods; in some cases the first trip of the year must be made while the frost is still in the ground to avoid bogging in treacherous muskegs. Other stations are either so remote from the settlements or situated in such forbidding country that the pack horse train is the only means of servicing them. The bulk of food supplies such as flour, dried beans, sugar, canned milk, and oatmeal is usually brought in on the opening trip. Further provisions will be delivered along with the mail by the ranger or warden on their regular patrols unless the post be near enough to the stores that the lookout man can attend to his supplies himself.

The forest watchman's kit of personal effects will consist of a complete outfit of heavy bush clothes, a sleeping bag or some warm woolen blankets, books, magazines and toilet articles and if possible a small caliber vermin rifle and a compact, battery-operated radio.

He must of necessity learn to cook. Preparing a meal may be somewhat of a problem for the novice; however, he soon learns to do justice to his palate. The proudest moment in the life of a lookout man is when he turns out his first good batch of bread. During the berry season he can, with a little industry, supplement his regular fare with a tasty dish of wild fruit.

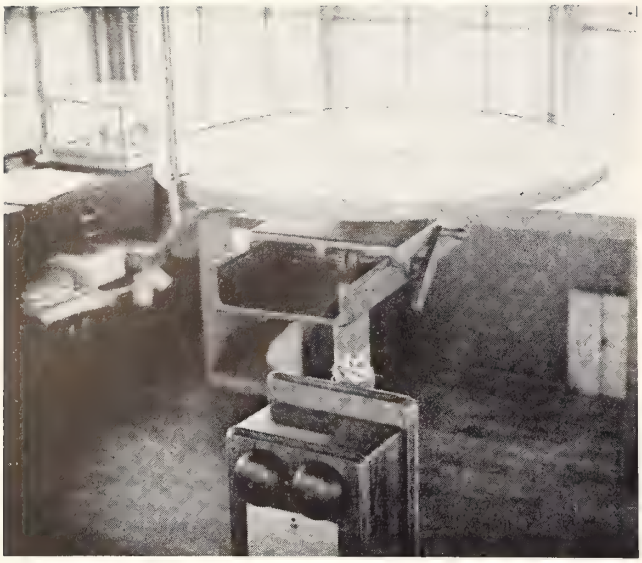
The working day at a lookout post begins early and ends at dusk. The observer must be on his honor as well as on his toes and ever aware that a stolen hour might invite a disastrous fire. This does not mean of course that he is denied any leisure. On days of heavy rainfall he is mostly confined to his living quarters. This is a handy time to mend clothes, do the laundering and look after the repairs to buildings and equipment. Following a rain, while the fire danger is still low, he might be instructed to do some trail clearing or to patrol the phone line for signs of damage.

In periods of high danger the day starts with a lookover of the surrounding country from the observatory; this is followed by a routine report to headquarters to check on the condition of telephone line or radio and to receive instructions. If the lookout man also holds the job of meteorological observer he will then proceed with the morning readings of temperature, wind velocity and direction, sky condition and relative humidity. Once these preliminaries have been attended to he is ready for his breakfast.

Before long he will be scanning the forest-top again for possible "smokes". When the observer once detects a sign of fire he sets the hair line of his "fire-finder" on the smoke column and thus obtains a "bearing." Then, by calling for a cross-bearing from another tower or with the aid of a panoramic map, the exact location of the fire can be determined. An experienced observer can

A lookout tower of Northern Alberta.

A pack train brings supplies to an isolated lookout.



The map table in a lookout by which fire outbreaks are quickly located.

often express the condition of a fire in the forest by reading the color and behaviour of the smoke. When the fire report is radioed or phoned in to the despatcher this information can be of great help to the suppression crew in planning their attack.

The number of scheduled contacts between the lookout and headquarters or with the mobile units is governed by fire-danger conditions. In high danger periods the observer may do ten or more hours watch a day. He must then learn to take his meals on the fly and to handle his binoculars with one hand and his fork with the other. He is also on call throughout the day. Radio-equipped lookouts are often used as relay stations and must stand by for messages; for this reason the observer at such a post must be a competent radio operator.

After the evening meal, a period is usually devoted to the clerical work of the station and then, after one last check of the forest, the lookout man's time becomes his own to while away as he wishes.

Some towers are manned only during high danger periods but others are operated from early spring till snowfall. No matter how retiring a man may be, after living alone with himself for six long months, he is always ready to get his feet back on cement walks for a spell and to enjoy the amenities of social life. A hair-cut and street clothes will fit him for this. However, when the spring thaw brings the ground up through the snow, you will see him studying the weather again as he anxiously plans to return to his lookout post.

All Manitoba Isn't Prairie!

MANITOBA is usually referred to as a "prairie" province. Actually 75 per cent of its land is wooded. Throughout the wooded area of the Province are scattered more than 500 saw-mills, engaged in converting trees into lumber, railway ties, lath and box wood. One paper mill, located at Pine Falls, produces 250 tons of newsprint per day.

Estimated value of forest products processed in Manitoba during 1946 was in excess of $9,000,000. Employment was thereby given to several thousands of people, either in full-time or part-time work.

Aspens, spruce and jack pine are the predominating species found in Manitoba. Spruce is probably the most valuable wood, for it makes excellent paper as well as being useful for general construction purposes. Pine and poplar are important sources of fuelwood.

Realizing the importance of maintaining the forest assets of Manitoba for the benefit of the Province as a whole, the Department of Mines and Natural Resources controls six areas as Forest Reserves. Proper management ensures that these lands are put to adequate use for timber, grazing and recreational purposes. One National Park is located within Manitoba at Riding Mountain. Attendance records indicate that it is one of the most popular of its kind in the entire Dominion.

The value of Manitoba's forest resources should be considered in the light of the many scientific developments which are creating an ever-increasing demand for wood and wood products. Forests can be a continuous crop, controlled to produce an annual harvest. Manitoba aims towards that goal by maintaining nurseries, regulating the amount of timber allowed to be cut, and otherwise assisting nature in sustaining one of the Province's most valuable resources. (Manitoba Government Bulletin).

Is Your Copy on Poorer Paper ?

Due to the critical problem of paper supply affecting all magazines, a portion of this issue of 'Forest & Outdoors' appears on a sub-standard grade of paper stock. The publishers hope to remedy this situation within the next month. Meanwhile, we ask the tolerance of our family of readers.

The hilltop. Photo by D. Clemson

"Ramparts of Trees"

(continued from page 41)

practical knowledge added much to western tree planting progress, and in the young Capitol of Saskatchewan he started and developed many of its present day beauty spots. It is to him the people owe the lovely grounds around the Legislative Buildings, and to George Watt it was a labour of love. A fellow countryman, Jim Craig, Parks Superintendent of Regina also made a great contribution, and the well-shaped streets and lovely parks of the Regina of today are the pleasing results of the foundations laid so well by him.

By the time our story opens the number of trees planted on the prairie had run into the millions; a few died, but the great majority of them were living and growing. They were mostly made up of trees that grew quickly, maple and poplar, but the success with them was showing people the benefits of tree planting. There still remained people who did not believe in tree planting, and doubted that it could be a success, and the growing of wheat was still the great incentive, often to the exclusion of everything else on the western farm. The pattern of western living, and the part trees would play in it, was, however, taking shape.

There was a steady increase in tree planting during the years between the end of the first World War and nineteen thirty. Most of the suitable land in the West was now under the plow, and many acres of marginal land were included. The prairie was one vast plowed field. By the end of the twenties about half of the farmers on the prairie had done some tree planting, many of them had large belts, but others had only planted a few hundred. However, people were steadily making greater use of trees with increasing appreciation of their value. A percentage of our farming people was consolidating their farm life, and planning for tomorrow. These people were growing many of their own food requirements and building up homes of comfort and beauty. A great many others were mining the soil in cereal production, and as each year passed, their soil was becoming more vulnerable to the twin evils of the plains, drought and wind erosion. When 1930 came and the beginning of the worst drought the West had known since its settlement, it found thousands of acres weakened by successive crops, with almost 60% of the land under summer fallow. Across the open prairie crop failure followed failure. Farming people were destitute, and thousands of them required assistance from public funds. A people living on the soil failed to produce even their own food. It was through these years that trees proved their great value, and we learned more about them and the contribution they could make than in all the years before.

Across the southern prairie, soil was on the march; once fertile fields were only hills and hollows of drifting soil. Fences were covered and the soil had drifted high against buildings and obstructions. It was up to the sills of downstairs windows in farm homes, and seeping into the rooms. And across this desert of land on the move, trees, and things growing inside their protection, were the only living things planted by man that survived. It is quite true that thousands of trees died in these terrible years. But loss was confined to certain varieties, willow, poplar and maple. These types had been planted in great numbers, because they were easy to secure, but more in the fact that they gave very rapid results. They gave the planter a large belt of trees quickly, but never a permanent one. The better trees, ash, elm, caragana and the evergreens not only lived — they grew. Tree planters

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knew, that by using these better types of trees, they could plant a shelter belt that would stay alive and serve them through good years and bad. The drought years established the fact that trees can be grown successfully anywhere in the West where we have ever grown wheat, and that they will continue to live through years and under conditions that make wheat growing impossible. Tree Planting became an established fact on the open prairie.

The benefits of tree planting were strikingly shown in these drought years. Their greatest contribution was in making the production of food for the farm family possible. Agricultural life is strongest when each farm family tries, as far as his location and time permits, to produce as much of his home table needs as possible. This important truth was too often completely overlooked. The wheat farmer relied on the sale of his grain to buy most other necessities of life, and apparently never thought of a day when it would prove impossible to raise any grain. However, there were exceptions. Farmers with good belts of trees had for years raised a great deal of garden produce inside these leafy walls. These gardens did not fail, and in them food was raised with success every year during the drought. These belts of trees held snow, stored moisture, prevented evaporation, and held off the disastrous winds. In every part of the vast drought area tree belts insured production from gardens, gave farm families their table needs, often in such quantity that some was available for less fortunate neighbours. Had adequate belts of trees been a part of every farm, with a garden ground inside their protection, the farming people of the plains could have raised their own food during these years of crop failure. The millions spent by Governments on feeding what we had always called an agricultural people could have been largely avoided. In this business of food production alone trees could have saved us millions of dollars but, of greater importance, saved our people from want.

(Part Two in next issue)

A Year of Unique Service to Canada

The Report of the General-Manager of the Canadian Forestry Association 1946

IT IS not within the scope of a few paragraphs to appraise the values of a twelvemonth's existence of such an institution as the Canadian Forestry Association. The best that may be done is to describe the channels through which the association works. The imponderables that can be neither described nor measured represent the real harvest of a year's labours. Any one who has watched a group of British Columbia lads in our training camp at Lighthouse Point, or has seen the eagerness of audiences of men and women in an Alberta or Quebec forest village, or has felt the post-war awakening to "resource management" of business groups in town and city gatherings understands something of the Association's real mission in the life of Canada.

Public opinion throughout the Dominion on rational management of the perishable resources has made great advances during the war year. The country-wide amalgamation of fish and game clubs into conservation groups, vigorous upholders of forestry as well as wild life management, is a case in proof. The readiness of editors to publish columns of material on forestry reflects the freshened interest of their readers. The preference shown for conservation objectives in the programmes of Boards of Trade, Chambers of Commerce, and agricultural societies, furnished evidence of the new hold of resource study upon public bodies hitherto indifferent. Such manifestations are in no small degree a consequence of the educational pressures exerted by the Canadian Forestry Association during its life of forty-six years. Even more they represent an ever-renewing challenge to match expanding opportunities with expanding strength and confidence.

The President's Field Duties :

Three trips were made by your President to Western Canada, six to Ontario points, and three to the Maritime Provinces during the year, involving addresses to various gatherings, consultations with Ministers and officers of Forest Services, the cultivation of newspaper friendships for the Association, radio broadcasts and other tasks in advancement of our educational mission.

The most ambitious travel assignment, however, was a visit to Sweden, Norway, Switzerland, and England occupying seven weeks from mid August to the end of September. The costs of the journey were generously contributed by six pulp and paper companies and

With a Canadian Forestry Association lecturer at Faiher, Alberta. Lining up for a theatre meeting.

Girl "Forest Guards" of the Canadian Forestry Association at Vancouver win the B.C. prize in first aid of St. John's Ambulance Assoc.

avoided any monetary burden on the Association's treasury. The aim of your President was to study some of the social rather than technical aspects of resource management, to learn the reasons for the solidarity of popular sentiment upholding advanced forestry practices and, further, to try to reflect the Scandinavian and Swiss scenes in a way to inspire and stimulate Canadian conviction. Fourteen Canadian daily newspapers undertook to publish the series of weekly article from abroad, but this coverage was much amplified by other journals appropriating the same material. As mentioned elsewhere in this report, our press clipping bureau turned in 140 columns devoted to the overseas series and much more than this eventually appeared. The distribution of the collected articles, to meet requests, will continue in 1947 until the supply is exhausted. From the material developed in Sweden and Norway, and Switzerland, a group of public addresses was inaugurated, commencing with the Canadian Club of Toronto in October, and having a hearty public reception at each succeeding presentation.

The British Columbia Branch :

Under the presidency of Mr. Ralph S. Plant and the executive direction of Mr. George X. Miller, with an able Board of Directors in constant touch with affairs, the British Columbia Branch made 1946 a year of vigorous achievement.

The training camp at Lighthouse Park, unique in location and equipment, and now in control of the Branch, gave training to 375 boys drawn from all parts of the province. Instruction courses were given in elementary forestry, fire-fighting, woodcraft, signalling, first aid, and swimming. Specific jobs of fire patrol were assigned to groups by motor launch, by trails and fire lookouts. Skilled instructors furnished much excellent service, and the eagerness and good discipline of the trainees was at all times in evidence.

Courses in forestry, signalling, and woodcraft, were given to Junior Forest Wardens with certificates and badges to successful applicants. The St. John's Ambulance Association co-operated with courses in first aid. At the Association headquarters in Vancouver and through 52 groups located at other points the training work was steadily advanced, with correspondence courses for those in more isolated areas. Three thousand Junior Forest Wardens are now taking their two years of training, with 1,200 due to graduate in April next, their ranks to be filled by new candidates.

A unique feature of the British Columbia programme is the recruiting of young women as Junior Forest Guards, and a large and keenly-interested body of Guards now shares part of the training of Junior Forest Wardens and plays a useful role in conservation enterprises. The Guards recently won the Junior First Aid championship in British Columbia.

Special attention was directed to publicizing forest protection appeals by means of 5,000 fire prevention posters and the creation of newspaper publicity which extended to 100 columns. Radio broadcast stations donated time for fire warnings and dramatized forestry sketches. Exhibits of graphic design were supplied to fairs in the interior districts.

Motion pictures and informative talks contributed heavily to the year's activities. Film presentations on forestry and allied topics were seen by 73,000 B.C. children. A lecture tour of the Cariboo, Vancouver Island and Fraser Valley attracted 18,160 persons.

Meriting a special word of praise was the service rendered by the Junior Forest Wardens in reporting and assisting in suppressing 147 fire outbreaks.

The Work of the Prairie Division :

The three prairie provinces represent one of the most fruitful areas for sustained education in conserving and enhancing the resources. A dynamic population stands

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THE STARS IN THEIR COURSES

by LYN HARRINGTON

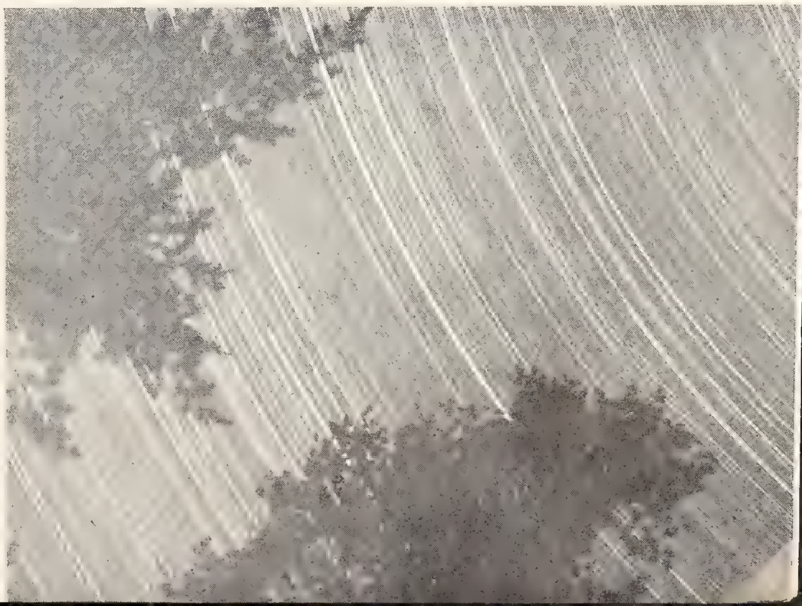
THE photograph shows the stars in their march across the sky. Or rather, it shows the effect of the starlight as the earth revolves. The camera was pointed obliquely at the sky for several hours on a June night. As the earth turned, the light of the stars drew the curved streaks across the film, the brightest stars making the widest streaks.

For centuries, men thought that the stars moved nightly across the sky. Today we know that it is the turn of the earth on its axis which changes the position of the stars to our eyes.

The stars do move, and very rapidly, but so far are they from the earth that their movement is not perceptible to human eyes. Although they seem stationary, they are not fixed in their places, but travel through space at varying rates of speed.

Each shining star is a great blazing sun, though not all are of the same size. The brightness of the star's light depends upon its size, upon its age (that is, upon the heat which its gases give out) and upon its distance from the earth.

The light from the star nearest to the earth takes about 4-5 years to traverse that distance. The light from the Pole Star left that heavenly body some fifty years ago. Stars seen with unaided eyes are relatively few in number, compared with those seen through the telescope. Photography of the skies through astronomical instruments reveals millions.



ready to scrutinize new ideas and to incorporate such as are useful into the life of the West. No tradition or custom is sufficiently entrenched to bar the way to better practices. This condition has assured a ready welcome to the teachings of the Canadian Forestry Association. The extension of our three prairie boards to embrace large and strongly representative groups of provincial leaders in all three provinces, each under a chairman and acting within the Prairie Division directed by Mr. W. A. Mather of Winnipeg, has had an effect even better than anticipated.

During 1946, the Prairie Division, under the executive management of Mr. Alan Beaven took on a new activity. The forest protection campaigns, hitherto handled by diverting the staff of the Tree Planting Car to a forestry tour for two months, were placed under Major H. S. Roberts. Furnished with a motor truck, presented to our Association by the President of General Motors, Mr. Wecker, Major Roberts and an assistant toured 20,000 miles from the Eastern border of Manitoba to the Peace River Country of Alberta and south to the Crows Nest Pass. Usually working in very small but strategically important communities an attendance of 23,000 was secured. No printed report could reflect the impression made upon the public by this tour, which is more graphically reflected in the comments of local teachers, rangers, and municipal officers. In scores of districts, Major Roberts' audiences were made up of people who owe their living to the forest and are eager to put an end to fire devastation and assure the livelihoods of their children.

The season's experience of the forest protection tour suggested strongly that the territory is too great to be covered by one lecture unit, and that for 1947 it would be better to employ two units and secure more intensive coverage.

The Tree Planting Car of our Association, which in the past 25 years was visited by more than a million people, is an increasingly welcome guest of hundreds of prairie communities. Its work has to do with the open prairie where the planting of shelterbelts is the first step in creating profitable food gardens, in the protection of live-stock, and the amelioration of living conditions in ways that the tree-owning prairie farmer can fully appreciate.

The Car last year travelled 2,906 miles over the Canadian Pacific and Canadian National Railways and held 338 meetings with a total attendance of 40,776. Most of those present were farm people. In the staff's sparetime between afternoon and evening showings of pictures and delivery of instructional talks, 194 farm homes were visited to assist in tree planting problems and more than 300 letters of inquiry from farmers were answered with complete information.

A newly-developed feature of the 1946 prairie work was the holding of school meetings in the larger centres. An eager welcome was given by teachers and pupils to whom the topic of the perishable natural resources, soils, forests, waters and wildlife, interpreted by good speakers and good pictures was a valued complement to a Western child's education. Mr. Alan Beaven our Western Manager, and his assistant on the tree Planting Car, Mr. Murray Pratt, and Major Roberts, who handled the forest protection tour, are to be complimented on their unremitting devotion to the Association's interests.

The thanks of the Association are offered to the Canadian Pacific Railway Company for its maintenance and improvement of the Tree Planting Car and to both of the great railway systems for courtesies of movement on their lines. To the provincial government Forest Services also a word of appreciation, and to the President of General Motors Products Corporation the Association's thanks for his gift of a motor truck.

Our Association Branches :

In a preceding paragraph reference has been made to the British Columbia Branch.

The Branches identified with the prairie provinces need no better commentary than the tree planting campaign and the forest protection campaign which have prospered so well under their auspices. Indeed the spirit manifested by our prairie directors and their readiness to rally to the association's enterprises and assume, at times, many onerous duties has stimulated and encouraged our field staff and the members and officers of the national board.

The record of other Branches in the past year has both sunlight and shadow. The setting up of a largely self-contained Ontario Branch of our Association has awaited the submission of the report of the Ontario Royal Commission on Forestry which is expected in the coming Spring. The New Brunswick Branch, which began under most favourable auspices, promises to regain its former stride as a result of the meeting called for March 19th next at Fredericton.

The Nova Scotia Branch has had a vigorous and constructive year, largely due to the Chairman, Mr. George E. Graham, who has given close personal supervision and constant promotion. His series of bulletins to all Nova Scotia directors and to many public men has stimulated interest in each current development. Unique success has been attained in creating a common front between the Canadian Forestry Association and the New Nova Scotia Fish and Game Protective Association, by which the latter and all of its branches made a public issue of forest management, woodlot care, tree planting along highways, the enlargement of the Laurencetown Nursery, and other matters of importance.

Special Calls for Assistance :

Of the daily tasks that fall to the head-office staff not more than passing notice may be taken of at least a score of important public memoranda on forestry questions, bearing the names of national organizations, in which our Association was involved as a major contributor. Such requests for our assistance take time and thought, and we have welcomed them eagerly as a means of adding to the number of protagonists in the field of conservation.

On a steady increase also is the number of letters from friends of conservation in all parts of Canada, expressing public viewpoints and criticisms and requesting the Association's views regarding them.

Radio Broadcasting :

One of the continuing duties of the Association is to secure the fullest possible service in forest fire prevention from radio stations across the Dominion. This is achieved virtually without financial outlay, owing to the goodwill of the radio executives towards our association. Briefly-expressed fire warnings are sent in groups of twenty-five to the announcers covering all English and French stations, and are supplemented by changed patterns of appeal every second month. A novelty instituted two years ago was again put into action by which fourteen of the national or international commercial sponsors of radio entertainment agreed to incorporate graphic forest protection messages, some of considerable length, in place of one of their "commercials". To be given access to the vast listening audiences of "Information Please",

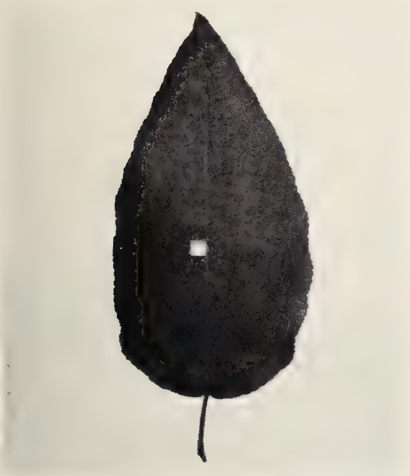
(*Continued on page 62*)

IMPROVISED GLARE GOGGLES

by **PAUL W. H. G. JOHNSON**

NATURE provides substitutes for many items that we often find missing from our equipment on our outdoor trips. Often we are confronted with situations that force us to look about and improvise. That is how woodsmanship teaches self-reliance. The ability to use what is at hand will produce confidence and pleasure.

Figure 1



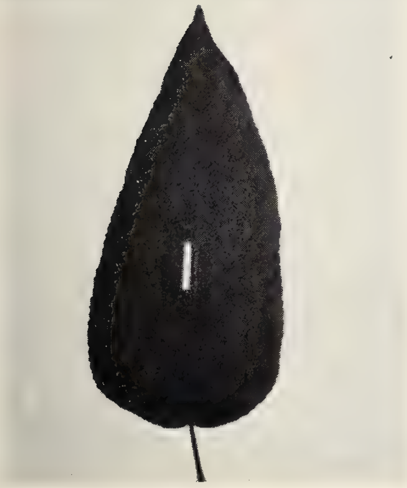
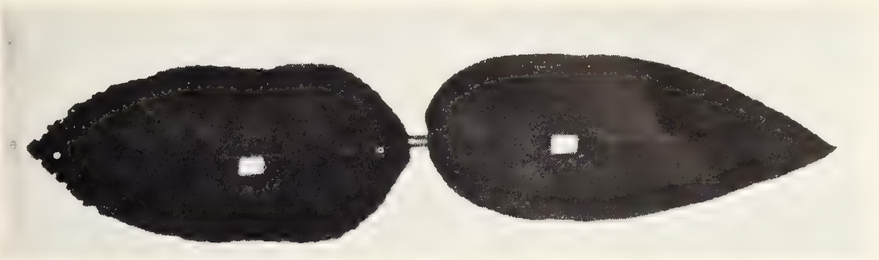


Figure 2

Snow blindness is painful and dangerous. Some people, who have been exposed to the bright glare of the sun reflected by snow, have become permanently blind. Exposing your eyes to any glare always will do some harm. Even though the damage may be very slight, it may accumulate through repetition and remain a lifelong handicap.

The excellent glare goggles that are sold today, especially the polarized type, give perfect protection from glare. However, if you are caught without such protection when canoeing or boating against the sun, traveling over stretches of country that reflect the glare, or in any similar situation, ordinary deciduous leaves can be punctured to make an excellent substitute goggle.

Figure 3



THE PUBLIC SERVICE OF CANADA

Requires

FOREST PRODUCTS ENGINEERS

$3,900-$4,500 & $3,000-$3,600

Department of Mines and Resources, Vancouver.

Full particulars on posters in Post Offices, National Employment Service Offices, or Offices of the Civil Service Commission throughout Canada. Application forms, obtainable thereat, should be filed immediately with the

CIVIL SERVICE
COMMISSION OF CANADA
OTTAWA

Good Companions
OLD CHUM
Canada's Original Aromatic *Pipe* Tobacco
CUT COARSE FOR PIPE · CUT FINE FOR ROLLING YOUR OWN

First, cut a small hole in each of two leaves in some position between the veins and about one inch from the base of the leaf. The holes should not be more than one-sixteenth of an inch square for strong glare (Fig. 1). For medium glare and better visibility, you can cut a slot in the leaf as in Fig. 2. A slot one half inch long and one fortieth inch wide is ample for full range vision. A person can see through a pinhole if it is held close enough to the eye, so keep the hole small.

Next, adjust a leaf over each eye so that you can see clearly through the holes, and tie the stems together in that position as illustrated in Fig. 3. Now by carefully passing a thread through each leaf so that it ties around the main leaf vein, you can put on the leaf goggles and tie the strings behind your head. These leaf goggles are remarkably efficient for several reasons. The light entering the slot or hole can be governed by the size of the hole and kept to an absolute minimum. You can see quite clearly through the minute apertures and the green of the leaf gives a slight soothing green tinge to the light that does enter.

The next time you are caught without goggles try this easy method of protecting your eyes from the pain and discomfort of glare and you will be surprised at how well it works. Leaves are abundant in most areas and a thread can be pulled out of your clothing if nothing else is available for tying. When subjected to glare in an area that is devoid of foliage, you can make a black charcoal ring around your eyes that will absorb some of the glare, but this is not entirely efficient.

You may find yourself caught in bright sunshine after an unexpected fall of snow and be subjected to severe glare. At this season deciduous leaves are not available. However, there are other methods of protecting your eyes. One method is to use a coloured handkerchief for a blindfold and force the weave apart opposite each pupil.

SANDVIK Pulpwood Saws,
Bow Frames and Tools
Make Hard Work Easy!

SANDVIK Saws and equipment are ideal on small timber and for cutting firewood. Send for our folder on wood tools and our up to date filing instruction pamphlet.

Distributors:

SANDVIK CANADIAN LIMITED
426 McGill Street, Montreal, P.Q.

CONSERVATION LENGTHENS ITS STRIDE

by VERNON E. JOHNSON,

Chairman of the Board
Canadian Forestry Association
in an address to
The Annual Conference
Montreal, February 10th

IT IS my duty to remind you that our responsibilities are increasing — increasing because of the success of our past efforts.

Everywhere today there is a much wider appreciation of the national significance of the forests and the part they play in the lives of every Canadian. Much of this stems very directly from the work of the Association in general and, in particular, from the long and patient travail of its staff.

Several examples of this increasing interest in the forests occurred during the last week of January. At that time the Canadian Pulp and Paper Association held its annual meeting. On the first day of this three-day session, no less than ten papers were presented which dealt basically with the problem of the maintenance of our forests.

The increasing interest of the public in these matters is evidenced by the fact that the press devoted very much more space to the deliberations of the industry as in former years. During the same week, the Royal Bank of Canada published a monthly letter on the pulp and paper industry. About half of the letter was devoted to a discussion of the forest problem.

Other indications of the increasing awareness of Canada to the problem lie in the adoption last year of a Forest Policy by the pulp and paper industry; by the hearings before three Royal Commissions appointed to study forestry matters; and by the increasing space devoted by the press to conservation. Obviously, all Canada has become increasingly aware of the gospel which this Association has been preaching for decades.

Lumber operators, too, realize the problem and are pressing for betterments. Both the provinces and individual forest operators are taking an interest in woodlot management. So today we have an interesting conjunction of circumstances. At the very time that Canada has become, to use an advertising term, forest-conscious, the demand for the products of the forests has reached an all-time high.

It would appear that no other natural resource in Canada's possession holds out equal promise for industrial expansion and increased industrial employment, as does the growing and utilization of forests. This, however, is predicated upon a far more complete protection of timberlands from fire and insect devastation, and improved systems of operating such as will create a maximum of reproduction of new wood material.

The attractive economic outlook for Canada's forest industry carries with it an urgent need to make the Canadian public a well-informed and active partner in a nation-wide plan of permanent forest resources. Governments, Public, and Forest Industry are major shareholders in this enterprise and the rate of progress depends upon their adoption of a unified programme.

In this situation, this Association finds itself with great responsibilities and great privileges. It is privileged in that it is the only body which can speak for Canadians as a whole on forest matters. And its responsibility is to assure that the forest problem will be solved to the best advantage to the people of this land.

It is for this meeting to decide how we should shoulder our responsibilities and utilize our privileges. I think we have come to the parting of the ways. Either we progress or go backwards. I think we shall progress. And one route of progress which might be discussed here today is the possibility of providing an adequate home, proper headquarters, for the Association which occupies such a key position in the forest scene. No other groups can speak as selflessly for the forest as our association. The views of no other single group will have as much weight with the public.

We are conscious of the way the wind is blowing, it is now our function to set the sails and lay our course.

★ ★ ★

OFFICERS AND DIRECTORS

(Continued from page 50)

DIRECTORS AT LARGE

Dr. E. S. Archibald, B. F. Avery, Geo Barber, Clive Betts, Roland Bock, D. Roy Cameron, Geo. Carruthers, J. B. Challies, J. B. Cross, D. Leo Dolan, Dr. A. R. Gobeil, G. M. Hutt, A. Joly de Lotbinière, Col. C. H. L. Jones, Walter D. Jones, Major-Gen. Howard Kennedy, F. I. Ker, Alex. Koroleff, Walter C. Laidlaw, A. Barnet Maclaren, Dr. K. W. Neatby, G. G. Ommanney, N. F. Parkinson, W. H. Smith, Jas. Smart, Theo. A. Torgeson, Jas. A. Vance, J. O. Wilson, E. J. Zavitz.

Past Presidents
Directors Ex-Officio

Arthur H. Campbell, Col. John H. Price. Ellwood Wilson, R. O. Sweezey, F. E. Bronson, John Bassett, Arthur A. Schmon, Henri Kieffer, Hon. G. P. Burchill.

★ ★ ★

NATURE'S BEST WINDBREAK

Trees are not only effective protectors of agricultural soil and guardians of agriculture's water supply. They are valuable as windbreaks, to protect crops from drying out in hot winds, and to provide shelter for livestock. Thousands of acres have been planted to trees for these purely agricultural purposes; Russia has made great progress in planting groves and windbreaks on the treeless steppes, and in North America shelterbelt and windbreak planting has developed on a large scale.

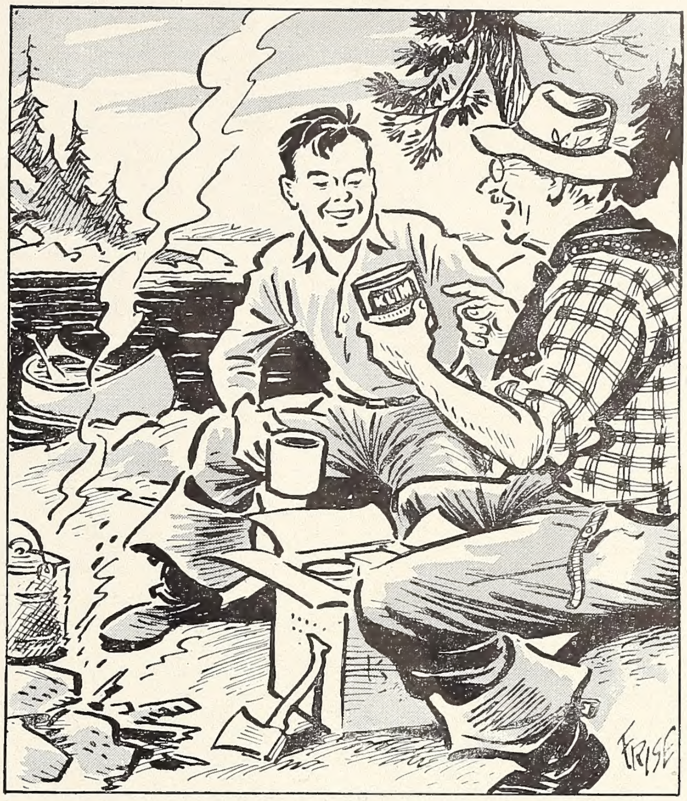
(United Nations Committee on Forestry)

★ ★ ★

MAN'S DEBT TO TREE LIFE

Forests have played a critical role throughout man's development from primitive nomad to creator of his present complex society. His way of life has been continually shaped by the presence or absence of forest products. He is never wholly independent of them. The northmost range of the Eskimo is limited by the flow of driftwood, and throughout the tropics trees are man's shelter, fuel, and even a source of food. High living standards require the abundant use of wood, and it is difficult to envisage the spread of knowledge throughout the world without wood in the form of paper.

(United Nations Committee on Forestry)



"Son, it wouldn't be a trip without KLIM!"

Most any seasoned sportsman can tell you why KLIM has been *preferred* by outdoorsmen for more than twenty years.

FIRST: KLIM is the perfect milk for packing on a trip! *So light* there are about four quarts of nourishing milk in each pound tin.

SECOND: It's simply top quality pasteurized whole milk with only the water taken out.

THIRD: In its special vacuum-sealed container KLIM will keep indefinitely. Even *after* the tin is opened, KLIM is so safe, so pure it will keep for weeks!

FOURTH: KLIM is ideal in beverages, for creaming soups and for making a host of tempting outdoor dishes.

Your grocer has KLIM! Take it with you on your next trip! And before you go . . .

SKILLET SKILLS FOR CAMP AND COTTAGE

FREE— Write for your Free copy of "Skillet Skills for Camp and Cottage"—with feature by Jack Hambleton, cartoons by Jimmy Frise, recipes and hints by outstanding authorities on outdoor life. Address—The Borden Company, Limited, Spadina Crescent, Toronto 4, Ontario.

"If it's Borden's it's GOT to be good!"

Borden's KLIM

CREAMY WHOLE MILK IN HANDY POWDER FORM

TUNE IN Borden's "Canadian Cavalcade" Every *Monday* Night CBC Trans-Canada Network.

"Treasure Trail" and many others of like standing, gives our work a sounding board far beyond our own power to purchase.

Newspaper Publicity :

While the special mission overseas of your President in itself developed 140 columns of newspaper space, our regular outgo of weekly newspaper stories between Spring and late Fall obtained an even larger concession. Our scheme of weekly "interviews" whereby positive views on resource management and fire prevention are sponsored by Canadians well known to the reading public has proved our best space-getter. More and more, however, special articles on forestry topics prepared by newspaper editors and staffs have come into play, and in many such instances our Association has been called upon for assistance and, very frequently, for illustrations.

Co-operative Lecture Programmes :

While the Association's own staff engaged on lecture work numbers only four persons, our service in equipping non-Association lecturers with complete motion picture programmes each year brings the lecturing personnel to eight and this promises a further addition of two in 1947. Talking pictures, chiefly in colour, were bought and distributed in 1946, covering such subjects as good forest management, wildlife conservation, and forest fire prevention. Awaiting the increase of our head-office staff is a plan for originating and producing more pictures carefully adapted to conditions applying in various areas of the Dominion. The field of motion picture making as an aid to public understanding of forestry calls for study and financial appropriations beyond anything attempted to date. Having regard to its high potential as a public influence the subject of well-designed interpretative films has thus far received only casual treatment by those concerned with forest welfare.

Briefs presented to Public Commissions :

Our Association prepared and submitted briefs to the Saskatchewan and Ontario Royal Commissions on Forestry, which were welcomed by the respective boards.

Our Use of the Printed Word :

The 1946 period was noteworthy for our publication and distribution of considerable editions of special educational brochures, designed to increase public understanding of important national problems. The previously published editions of "The Wallace Report" and "For the land we live in" were used to the extent of several thousands, usually in satisfying requests. Ten thousand copies of "Alberta's Firm Foundations", dealing with the interprovincial question of the western water supply and its dependence upon watershed forests had an eager welcome throughout Alberta. This attractive booklet, written by Leonard D. Nesbitt of Calgary, was inspired chiefly by our Alberta Chairman, Mr. R. D. Purdy and a portion of the cost was borne by the Alberta Wheat Pool.

In the month of December, 5,000 illustrated brochures in attractive form gathered together the seven overseas articles by the Association President under the title "Notebook of a Conservationist Abroad" and the edition was warmly received. It is worthy of remark that scores of leading Canadians, hitherto evincing a minor interest in forestry, requested substantial quantities for personal distribution to executives of their staffs. The Swedish and Norwegian foreign office authorities also asked for 150 copies, and several of the Canadian Ministers of Lands and Forests requested from 25 to 100 copies each for use by their officers.

Although the task was commenced only in December, our agreement with the author, Mr. Alex Koroleff, to promote and distribute his "Practical Aid to Woodlot Management" was instrumental in sending out the first thousand of a supply of five thousand books. It is expected that the edition will rapidly be taken up as it has been approved as an excellent instruction manual that fills a definite need.

Forest and Outdoors Magazine :

Our Association magazine appears to meet with a warm welcome from its readers. Scores of letters monthly comment favourably upon its readability and its effectiveness as a propagandist medium. While every effort is made to secure a higher average of interpretative articles in forestry, the results are not yet satisfactory to the editor. The circulation, presently 9,400 monthly, is regarded as insufficient, and should be at least doubled. It is well to point out, however, that as the magazine has no separate editor and is handled in spare time by the General-Manager, with no staff yet available for circulation development, the problem of business promotion fell to the lot of Mr. Fraser Keith. Mr. Keith has given this task most devoted attention and the 1946 period saw the net advertising revenue doubled from $5,368 to $10,778. Unfortunately, the wave of rising prices caused a 25% increase for printing and paper, which coupled with the cost of adding additional pages to the magazine to contain new advertising, brought the production costs of the magazine to $16,463 for 1946 compared to $12,651 for the previous year. Total receipts from subscriptions and advertising were $18,402 which left a gross profit margin of $1,939 to cover the outlays of staff salaries chargeable to the magazine. It is essential, however, to point out that the Association furnishes about 2,500 subscriptions to the British Columbia Branch each year, the entire receipts being retained by that branch amounting to $4,900. Our fulfilling of all such subscriptions by twelve issues of the publication to B.C. subscribers creates a volume of revenue for the B.C. Branch but involves a debit of at least $1.25 per subscriper by the parent association. We have requested the B.C. Branch to consider allowing the head-office payment of one dollar for each magazine subscription taken by the Branch which, if agreed to, will improve the magazine's financial showing.

Our Financial Experience :

Inasmuch as the annual audit of the Association's books by Messrs. Stevenson, Walker and Knowles, chartered accountants, is not complete at the time of mailing this report, a separate Financial Report will be placed in the hands of our Directors at the annual meeting. The year's experience shows an increase of revenues of approximately $18,620 and with operating costs advanced by virtually the same amount. Increased outlays are attributable to the new western forest protection staff and their travels, added costs of the magazine, increased staff at head-office, motion pictures, and field expense brought about by travel mileage.

Respectfully submitted.
Robson Black,
General-Manager.

Editor's note: The 1946 financial statement will appear in the next issue of Forest & Outdoors.

Quiz . . . FOR CANADIANS

★

Every Canadian today is asking himself this question:
"How much more will it cost me to live tomorrow?"

The answer depends on us . . . Living costs should not increase . . .

IF—we all keep on resisting the temptation to try to get more than our fair share of available goods.

IF—we continue to restrict our purchases to what we really need.

IF—we keep on producing as much as we can at as low a price as we can.

IF—we continue to support to the full our Government's wise measures of control.

IF—we continue to walk the middle road, the road of moderation in all things—in our thinking, in our actions and in our pleasures.

IF—as The House of Seagram has always suggested, we continue to *think of tomorrow and practice moderation today!*

Men who Think of Tomorrow *Practice Moderation Today!*

THE HOUSE OF SEAGRAM

†*Nature Unspoiled* YOURS TO ENJOY YOURS TO PROTECT

"SILVER FOX" *by W. B. Herbert.*
The above illustration shows the silver fox in his wild magnificence.

Silver Fox Fur was a prize worth more than its weight in gold and led men into Canada's bleak wilderness to wealth and sometimes to death. The silver fox was king among the fur-bearers in a trade which gave shape to young Canada's economy and colour to her history.

* "The future well-being of our fur-bearing animals may depend on the widespread application of wildlife management principles . . . we can help by giving support and encouragement to both private and government effort in this new and promising field."

* An excerpt from—CONSERVATION AND CANADA'S FUR-BEARING ANIMALS, by S. C. Downing, one in a series of pamphlets published by The Carling Conservation Club.

THE TRAPPER
—*a Conservationist*

The trapper, through the system of registered trap lines, becomes in effect a wild fur farmer and thus an active conservationist in his allotted area.

CARLING'S
THE CARLING BREWERIES LIMITED
WATERLOO AND WALKERVILLE, ONTARIO

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